

ABSTRAK

Pembelajaran Matematika Pada Materi Luas Permukaan Dan Volume Limas Melalui Model *Problem Based Instruction* (PBI) Dengan Memanfaatkan Program *Cabri 3D* Untuk Siswa SMP Kristen Kalam Kudus Yogyakarta Kelas VIII

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Penelitian ini bertujuan untuk mengetahui pembelajaran matematika dengan model *Problem Based Instruction* (PBI) tanpa Program *Cabri 3D* untuk kelas konvensional dan model *Problem Based Instruction* (PBI) berbasis Program *Cabri 3D* tentang luas permukaan dan volume limas. Penelitian ini dilaksanakan di SMP Kristen Kalam Kudus Yogyakarta tahun ajaran 2012/2013. Subyek dalam penelitian ini adalah siswa kelas VIII A dan siswa kelas VIII B di mana kelas VIII A adalah kelas eksperimen yang menggunakan model *Problem Based Instruction* (PBI) berbasis Program *Cabri 3D*. Sedangkan kelas VIII B adalah kelas konvensional yang hanya menggunakan model *Problem Based Instruction* (PBI) tanpa Program *Cabri 3D*.

Metode penelitian yang dipakai yaitu eksperimen semu. Data yang diperoleh berasal dari observasi, wawancara dengan guru matematika, hasil pekerjaan siswa, wawancara dan kuesioner. Peneliti memberikan materi mengenai konsep luas permukaan dan volume limas kepada siswa kemudian dilanjutkan dengan tes tertulis.

Hasil penelitian berupa proses pembelajaran dan membandingkan hasil belajar dari dua kelas. Dari hasil penelitian yang diperoleh, pembelajaran dengan model *Problem Based Instruction* (PBI) berbasis Program *Cabri 3D* pada kelas VIII A memberikan hasil lebih tinggi dibandingkan kelas VIII B. Berdasarkan hasil kedua pembelajaran tersebut dapat disimpulkan bahwa pembelajaran model *Problem Based Instruction* (PBI) berbasis Program *Cabri 3D* dapat meningkatkan kemampuan berpikir geometri siswa mengenai luas permukaan dan volume limas dibandingkan dengan kelas konvensional. Selain itu, dapat dilihat juga manfaatnya dari proses belajar mengajar, hasil pembelajaran, kuesioner, dan wawancara.

Kata-kata kunci : *Problem Based Instruction*, Luas Permukaan Limas, Volume Limas, Program *Cabri 3D*

ABSTRACT

Mathematics learning of Surface Area and Volume Pyramid Through *Problem Based Instruction* (PBI) Model Using *Cabri 3D* Program for Students of SMP Kristen Kalam Kudus Yogyakarta Grade VIII

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This research is aimed to know mathematics learning with *Problem Based Instruction* model (PBI) without *Cabri 3D* program for conventional class and *Problem Based Instruction* model (PBI) based on *Cabri 3D* program about surface area and volume of pyramid. This research is done in SMP Kristen Kalam Kudus Yogyakarta batch 2012/2013. The subject of this research are the students of grade VIII A with *Problem Based Instruction* model (PBI) experiment based on *Cabri 3D* program. And grade VIII B with *Problem Based Instruction* model (PBI) without *Cabri 3D* program experiment for conventional class.

The research method used is quasi experimental. The data are collected from observation, interview with mathematics teacher, students' work, student interview and questioner. The researcher gives the teaching material to the student about the concept of surface area and volume of pyramid and continues the process with written test. The result of the research is organized as the learning process and the comparison of the learning result of two classes.

Based on the result of the research, the learning process which uses *Problem Based Instruction* model (PBI) based on *Cabri 3D* program in grade VIII A gives higher result than in grade VIII B. In conclusion, based on the result of learning process in grade VIII A and VIII B, *Problem Based Instruction* model (PBI) based on *Cabri 3D* program has the higher chance to increase the students thinking ability in geometry about surface area and volume of pyramid rather than in conventional class. Besides, the benefit of this program can be seen from the teaching and learning process, the learning result, questioner and students interview.

Keywords : *Problem Based Instruction*, Surface Area of Pyramid, Volume of Pyramid, *Cabri 3D* Program